

Broad Mites

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Broad mites (*Polyphagotarsonemus latus*) are a species of small mites that damage many ornamental crops. They are most active during the warmer summer months but they may be active year round in a greenhouse. If not controlled in time, feeding damage can result in unmarketable plants. Broad mites typically feed on the newest growth, which eventually becomes deformed and stunted. Broad mites are almost impossible to see with the naked eye and are best viewed with a strong hand lens or microscope.



Image 1. The leaves on this dogwood (*Cornus florida*) plant are stunted, strap-like and curling downward in response to broad mite feeding.

Typical symptoms of broad mite feeding can mimic 2,4-D herbicide damage. New leaves are small, stunted, strap-like, and they sometimes curl downward and inward (Images 1 and 3). Prolonged feeding will stunt and reduce plant growth, increase shoot proliferation farther down the stem, and sometimes result in a leaf color change. Broad mite saliva is toxic to plants, thus even after the mites are destroyed, new growth may still emerge deformed.

Broad mites are no larger than 0.2 mm, less than half the size of a two-spotted spider mite. They are able to hide and feed in the tightest, newest growth so scouting activities should be concentrated there first. They are also often found on the underside of the

creased and cupped leaves caused by their feeding. Broad mites are usually light green to yellow, football shaped (Image 4) and very active on the plant, walking and crawling around vigorously.

Broad mites have a short and rapid lifecycle living between 5 and 13 days. An unmated female will lay male eggs only, but after mating, she will lay about 4 female eggs for every male egg. Eggs are clear, elliptical, and covered with opaque white dots (Image 2). In a few days, 6-legged larvae will hatch and immediately begin to feed. Two to 3 days after hatching, the larvae enter an inactive (*i.e.*, quiescent) phase. Active adult males will pick up and carry the quiescent females (Image 5) until they become active, at which time, mating occurs.

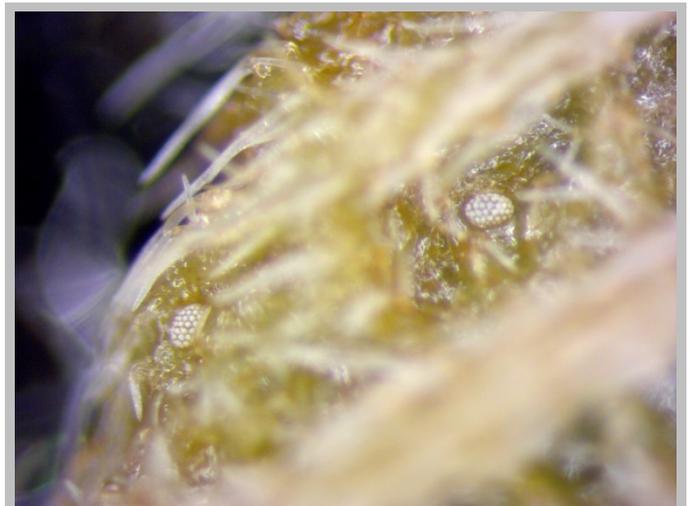


Image 2. Eggs are one of the easiest distinguishing features to look for when identify broad mites. Under a microscope the eggs appear as clear round little spheres covered with white opaque dots.

Broad mites are believed to be dispersed to new plants through plant-to-plant contact or moved by larger insects like white-flies and aphids. It is unknown if broad mites will survive unprotected outdoors through a winter in Tennessee.

It is critical to control broad mites as quickly as possible. Their rapid lifecycle allows populations to build up quickly and infest adjacent plants. Control can be achieved through applications of selected miticides labeled for broad mites (Table 1). Many miticides that work on the more common two-spotted and spruce spider mites provide little or no control for broad mites.

Rotating chemical classes or modes of action is always wise, but this is especially important for broad mites because of their rapid lifecycle. Their ability to have multiple generations per year allows populations to quickly develop miticide resistance.



Image 3. Broad mite feeding damage on this *Clethra* sp. plant has resulted in small, stunted and cupped-shaped leaves that are slightly darker than the older unaffected leaves below.

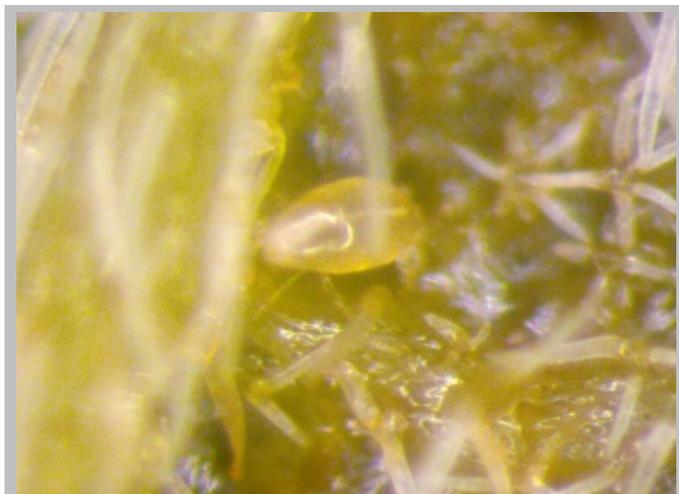


Image 4. Adult broad mites are typically light green to yellow, football shaped and 0.2 mm or less.



Image 5. An adult male broad mite is carrying a quiescent female. He may carry her to a new plant and begin a new generation.

Table 1. Selected miticides labeled for use on broad mites.

Miticide	MOA ¹	Egg Kill	Adult Kill	Notes
Akari 5SC	21	No	Yes	Chemical must contact mites.
Avid 0.15 EC	6	No	Yes	May be phytotoxic to ferns and Shasta Daisy.
Dormant Oil	M	Yes	Yes	Complete coverage essential.
Judo 4F	23	Yes	Yes	May be phytotoxic to Hydrangeas and others.
Magus 18.79 SC	21	Yes	Yes	Do not apply to roses.
Pylon 2L	13	No	Yes	May be phytotoxic to roses and others.
SanMite 75 WSB	21	No	Yes	
Sirocco SC	6+25	Yes	Yes	
Summer Oil	M	Yes	Yes	Complete coverage essential.
Triact 70	M	Yes	Yes	Active ingredient is a neem oil extract.

¹ MOA: Mode of Action.
<http://www.tnstate.edu/faculty/ablalock/documents/Insecticide%20MOA.pdf>